



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,538	09/09/2000	Paul Robert Williams	1136/190-P00028US	3472

757 7590 04/28/2005

BRINKS HOFER GILSON & LIONE

P.O. BOX 10395

CHICAGO, IL 60610

EXAMINER

CHAU, COREY P

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/658,538

Applicant(s)

WILLIAMS, PAUL ROBERT

Examiner

Corey P Chau

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/24/03, 07/06/01, 01/16/01
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “removing the at least one notch filter if the amplitude of the frequency being tested has not been reduced by at least the predetermine value”, in Claim 1, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 7 is objected to because of the following informalities: on line 14, recites "the speaker", should be replaced with "the at least one speaker". Appropriate correction is required.

3. Claim 15 is objected to because of the following informalities:

On line 7, recites "the bin value", should be replaced with "the new bin value".

On line 10, recites "the old bin value", should be replaced with " the bin value".

Appropriate correction is required.

4. Claim 16 is objected to because of the following informalities: on line 2, recites "Filtered Value = (bin value - previous bin value)*K + previous bin value", should be replaced with "Filtered Value = (new bin value - bin value)*K + bin value". Appropriate correction is required.

5. Claims 17, 24, 36, and 49 are objected to because of the following informalities: on line 2, recites " $K = 1 - (\text{Threshold}) (1/t * Ffs)$ ", which is inconsistent with the specification on page 11, line 23. Appropriate correction is required.

6. Claim 23 is objected to because of the following informalities: on line 2, recites "Filtered Value = (bin value - previous bin value)*K + previous bin value", should be replaced with "Filtered Value = (new bin value – previous bin value)*K + previous bin value". Appropriate correction is required.

7. Claim 38 is objected to because of the following informalities: on lines 12 and 15, recites "the processor", should be replaced with "the at least one processor". Appropriate correction is required.

Art Unit: 2644

8. Claim 44 is objected to because of the following informalities: on line 1, recites "the digital filter", should be replaced with "the at least one digital filter". Appropriate correction is required.

9. Claim 48 is objected to because of the following informalities: on line 2, recites "Filtered Value = (New Bin Value – Old Bin Value)*K + Old Bin Value", should be replaced with "Filtered Value = (New Bin Value - Bin Value)*K + Bin Value". Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The application recites in Claim 1, "removing the at least one notch filter if the amplitude of the frequency being tested has not been reduced by at least the predetermined value". However, no details are given as to how to removing the at least one notch filter if the amplitude of the frequency being tested has not been reduced by at least the predetermined value and thus one of ordinary skill in the art would be unable to actually make and use the invention. In this regards, the specification is merely an invitation to

Art Unit: 2644

experiment, i.e. Applicant is requiring the public to disclose how to make the invention work, as opposed to disclosing it to the public. Claims 2-6 depends on Claim 1, which is rejected above.

12. Claims 15-18, 19-25, 34-37, and 47-50 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The application recites in Claims 15, 19, 34, and 47, "setting the bin value to the new bin value when the bin value is less than or equal to the bin value", which the specification and drawing does not have support for the limitation "or equal to". Claims 16-18 depends on Claim 15, which is rejected above. Claims 20-25 depends on Claim 19, which is rejected above. Claims 35-37 depends on Claim 34, which is rejected above. Claims 48-50 depends on Claim 47, which is rejected above.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 2, 5, 7, 17, 18, 19, 24, 25, 26, 27, 31, 36, 37, 38, 39, 43, 47, 49, and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2644

15. Regarding Claim 2, it is unclear to the Examiner as to what "the determining step" is referring to in Claim 1, wherein Claim 1 discloses "determining at least one parameter for at least one notch filter" and "determining the amount of reduction in amplitude of a frequency being tested"

16. For example, Claim 5 recites the limitation "the magnitude" in line 2.

Claim 5 recites the limitation "the frequency" in line 5.

Claim 5 recites the limitation "the magnitude" in line 2.

Claim 7 recites the limitation "the magnitude" in line 17.

Claim 7 recites the limitation "the predetermine amount" in lines 17 and 18.

There is insufficient antecedent basis for this limitation in the claims. Appropriate corrections are required for the above mentions and through out the claims for any other claims with insufficient antecedent basis (Claim 17, 18, 19, 24, 25, 26, 27, 31, 36, 37, 38, 39, 43, 47, 49, and 50).

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18. Claims 7-14, 26-33, and 38-46 are rejected under 35 U.S.C. 102(b) as being anticipated by US. Patent No. 5677987 to Seki et al (hereafter as Seki).

Art Unit: 2644

19. Regarding Claim 7, a best understood with regarding the 112, 2nd problem as mention above, Seki discloses method of reducing unwanted acoustical feedback (i.e. feedback detector and suppressor) in a space having at least one microphone for transducing acoustic signals into electrical input signals (i.e. input terminal 1 is connected to an external microphone) and at least one speaker for transducing electrical output signals into acoustic signals (i.e. output signal from the output terminal 6 is reproduced by a speaker)(column 5, lines 1-22); the method comprising: converting the electrical input signals to corresponding digital input signals (2); examining the digital input signals for at least one candidate signal of unwanted acoustical feedback (7,8); adjusting at least one digital filter in response to a detection of the at least one processing the digital input signals through the at least one digital filter to candidate signal; generate digital output signals (4,9); processing the digital input signals through the at least one digital filter to generate digital output signals (3); converting the digital output signals to electrical output signals (5); testing the electrical output signals by broadcasting the electrical output signals through the speaker to generate new input signals and analyzing the effect of processing the digital input signals (Figs. 2, 12, 14, and 16); and readjusting the at least one digital filter by decreasing a depth of the at least one digital filter if the magnitude of the at least one candidate signal is not reduced by the predetermined amount, such that the unwanted acoustical feedback in the space is reduced (Figs. 2, 12, 14, and 16; column 5, line 56 to column 6, line 27; column 9, lines 14-41).

20. Regarding Claim 8, Seki discloses increasing the depth of the at least one digital filter if a magnitude of the at least one candidate signal is reduced by a predetermined amount (Figs. 5, 6, 8, and 9; column 5, line 56 to column 6, line 27; column 9, lines 14-41).

21. Regarding Claim 9, Seki discloses transforming the digital input signals into a frequency spectrum to produce a plurality of bin values wherein each bin value represents a function of an amplitude of the digital input signals across a frequency spectrum bandwidth (7)(Figs. 2, 12, 14, and 16; column 5, line 56 to column 6, line 27).

22. Regarding Claim 10, Seki discloses the function is a sum of a square of a real component of the amplitude and a square of an imaginary component of the amplitude (i.e. it is inherent to take the sum of a square of a real component of the amplitude and a square of an imaginary component of the amplitude, in order to calculate a magnitude)(Figs. 2, 12, 14, and 16; column 5, line 56 to column 6, line 27).

23. Regarding Claim 11, Seki discloses the function is a square root of a sum of a square of a real component of the amplitude plus a square of an imaginary component of the amplitude (i.e. it is inherent to take the square root of a sum of a square of a real component of the amplitude plus a square of an imaginary component of the amplitude, in order to calculate a magnitude)(Figs. 2, 12, 14, and 16; column 5, line 56 to column 6, line 27).

24. Regarding Claim 12, Seki discloses establishing a set of candidates comprising a predetermined number of bin values with largest magnitudes (841,843,844,845), testing each candidate in the set of candidates by determining an acoustical significance of

Art Unit: 2644

each candidate and removing the respective candidate from the set of candidates if the respective candidate is not acoustically significant, and determining the at least one candidate signal from the set of candidates (Figs. 5, 6, 8, and 9; column 5, line 56 to column 6, line 27).

25. Regarding Claim 13, Seki discloses determining an average value which is a function of the magnitudes of the plurality of bin values (42,46); comparing the bin value of each candidate in the set of candidates to an absolute value and removing the respective candidate from the set of candidates if the respective bin value of the respective candidate is less than the absolute value; and comparing the bin value of each candidate to a relative value, and removing the respective candidate from the set of candidates if the bin value of the respective candidate is less than the relative value, wherein the relative value is a function of the average value and a relative multiplier (Figs. 5, 6, 8, and 9; column 5, line 56 to column 6, line 27; column 7, lines 10-34).

26. Regarding Claim 14, Seki discloses the relative multiplier is a function of the magnitudes of the plurality of bins (Figs. 5, 6, 8, and 9; column 5, line 56 to column 6, line 27; column 7, lines 10-34).

27. Regarding Claim 26, a best understood with regarding the 112, 2nd problem as mention above, Seki discloses a system for reducing unwanted acoustical feedback (i.e. feedback detector and suppressor) comprising: at least one processor (Figs. 2, 12, 14, and 16); at least one memory accessible to the processor (10); and programming comprising instructions for: examining the digital input signals for at least one candidate signal of unwanted acoustical feedback (Figs. 5, 6, 8, and 9; column 5, line 56 to

column 6, line 27); adjusting at least one digital filter (3) in response to a detection of the at least one candidate signal; processing the digital input signals through the at least one digital filter to generate digital output signals (Figs. 2, 12, 14, and 16); converting the digital output signals to audio output signals (5); testing the audio output signals by broadcasting the audio output signals through the speaker to generate new audio input signals and analyzing the effect of processing the digital input signals (i.e. output signal from the output terminal 6 is reproduced by a speaker)(column 5, lines 1-22); and readjusting the at least one digital filter by decreasing the depth of the at least one digital filter if the magnitude of the at least one candidate signal is not reduced by the predetermined amount, such that the unwanted acoustical feedback in the space is reduced (Figs. 2, 12, 14, and 16; column 5, line 56 to column 6, line 27; column 9, lines 14-41).

28. Claim 27 is essentially similar to Claim 8 and is rejected for the reasons stated above apropos to Claim 8.

29. Claim 28 is essentially similar to Claim 9 and is rejected for the reasons stated above apropos to Claim 9.

30. Claim 29 is essentially similar to Claim 10 and is rejected for the reasons stated above apropos to Claim 10.

31. Claim 30 is essentially similar to Claim 11 and is rejected for the reasons stated above apropos to Claim 11.

32. Claim 31 is essentially similar to Claim 12 and is rejected for the reasons stated above apropos to Claim 12.

33. Claim 32 is essentially similar to Claim 13 and is rejected for the reasons stated above apropos to Claim 13.

34. Claim 33 is essentially similar to Claim 14 and is rejected for the reasons stated above apropos to Claim 14.

35. Regarding Claim 38, a best understood with regarding the 112, 2nd problem as mention above, Seki discloses an apparatus for reducing unwanted acoustical feedback (i.e. feedback detector and suppressor) in a space having at least one microphone for transducing acoustic signals into electrical input signals (i.e. input terminal 1 is connected to an external microphone) and at least one speaker for transducing the electrical output signals into acoustic signals (i.e. output signal from the output terminal 6 is reproduced by a speaker)(column 5, lines 1-22), the apparatus comprising: an analog-to-digital converter (2) which converts the electrical input signals to digital input signals; at least one processor coupled to the analog-to-digital converter (Figs. 2, 12, 14, and 16); a memory accessible to the processor for storing software modules (4,10,841), including an examining module to examine the digital input signals for candidate feedback frequencies (7,8), at least one digital notch filter (3) implemented in the at least one processor which processes the digital input signals and wherein the processor determines parameters for the at least one digital filter in response to a detection of at least one candidate frequency in the digital input signal (Figs. 5, 6, 8, and 9; column 5, line 56 to column 6, line 27), a digital to analog converter (5) coupled to the processor for converting the digital output signals to electrical output signals, and a testing module which decreases the notch depth parameter if the magnitude of the at

Art Unit: 2644

least one candidate frequencies is not reduced by a predetermined amount (Figs. 2, 12, 14, and 16; column 5, line 56 to column 6, line 27; column 9, lines 14-41).

36. Claim 39 is essentially similar to Claim 8 and is rejected for the reasons stated above apropos to Claim 8.

37. Claim 40 is essentially similar to Claim 9 and is rejected for the reasons stated above apropos to Claim 9.

38. Claim 41 is essentially similar to Claim 10 and is rejected for the reasons stated above apropos to Claim 10.

39. Claim 42 is essentially similar to Claim 11 and is rejected for the reasons stated above apropos to Claim 11.

40. Claim 43 is essentially similar to Claim 12 and is rejected for the reasons stated above apropos to Claim 12.

41. All elements of Claim 44 are comprehended by Claim 38. Claim 44 is rejected for the reasons stated above apropos to Claim 38.

42. Claim 45 is essentially similar to Claim 13 and is rejected for the reasons stated above apropos to Claim 13.

43. Claim 46 is essentially similar to Claim 14 and is rejected for the reasons stated above apropos to Claim 14.

Conclusion

Art Unit: 2644

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P Chau whose telephone number is (703)305-0683. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Sinh can be reached on (703)305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 1, 05


XU MEI
PRIMARY EXAMINER